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ABSTRACT

In 1991, the state of Arkansas passed state requirements for the establishment of a tech prep core curriculum for high school programs. The Arkansas program will be developed around the 2+4+2+2 theory, but will mostly focus on the 2+2 plan integrating academic and vocational education. The goal will be to advance the competencies of academic and occupational students in mathematics, science, communications, problem-solving, critical thinking, and higher-order work skills through an applied approach related to work. The plan in Arkansas calls for school districts to form a consortium with area community colleges to help implement the last 2 years of the program and to link high school and postsecondary technical training in a continuous sequence. The tech prep core curriculum will consist of courses in computer technology, applied academics, keyboarding, personal and family life skills, workplace readiness, and career and occupational orientation. Tech prep is needed because today's workplace requires advanced technical skills and an ability to understand complex theories and processes in rapidly changing and emerging technologies. Students, employers, high schools, and postsecondary institutions all benefit from tech prep. To be successful, tech prep programs should involve contextual learning, local partnerships, articulation, career exploration and counseling, associate and/or baccalaureate degree potential, and an evaluated postsecondary curriculum. Success of a tech prep program can be ensured through the cooperation of schools with business and labor and national and local governments. (KC)

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TECH PREP IN ARKANSAS
A PROPOSED BETTER WAY

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TECH PREP IN ARKANSAS

A PROPOSED BETTER WAY

The state of Arkansas in 1991 passed state statutory requirements for the establishment of a Tech Prep core curriculum for high school programs. The requirements directed the Vocational and Technical Education Division of the State Department of Education to establish Youth Apprenticeship/Work-Based Learning Programs for college-bound and work-bound students. Apprenticeship and work-based learning programs may be components of a sequential program of study in the Tech Prep technical specialties.

The Arkansas Plan for Tech Prep will be developed around the 2+4+2+2 theory, but could and will be a combination of these sequences as school districts develop what they feel will better fit their needs. The major plan in Arkansas appears to be the 2+2 plan.

The plan, A Tech Prep Model of a dual purpose program of studies for establishing high expectations of all students by integrating academic and vocational and education.

The goal will be to advance the competencies of academic and occupational students in mathematics, science, communications, problem-solving, critical thinking, and higher order work skills.

The method will be to teach essential concepts through an applied approach related to the world of work in sequential, planned programs of study.

The Arkansas Department of Education, Office of Vocational and Adult Education has defined Tech Prep Education as follows: Tech Prep education is an alternative to the college prep course of study. It prepares the student for a highly skilled technical occupation that allows either direct entry into the workplace as a qualified technician or continuation with

further education leading to an associate degree or a baccalaureate degree. Tech prep can start in the 7th grade in a sequential program of study through grade 12, with 2 or more years of post secondary education. It may also start in the 11th year of high school and continue through 2 or more years of postsecondary education. The plans used will depend on the need of each school district. Regardless of how we define "Tech Prep" in Arkansas, there is a need to establish a mechanism and network to serve as a platform for future educational reform initiatives.

The plan in arkansas calls for school districts around the state to form a consortium with area community colleges to help implement the last 2 years of the program. Most school districts in the state are located close enough to a community college that all can be served. The plan calls for the community college to develop a set of general agreements, policies, and procedures for establishing program or course articulation agreements between the secondary schools and the college. With this plan being worked on at the present time, this program should be in full force by the 1994-95 school year.

Formal program articulation agreements will help students in a number of ways: high school students will have course "blueprints" for their chosen program of study; the "blueprints" will assure transition to college programs and provide a sense of direction for secondary students; students will hopefully enter college better prepared for their programs of study; drop out rates will decrease; the number of students entering college will increase; and students will acquire the skills and competencies requisite for their chosen field. Students will no longer get "lost" in the general education track.

The Tech Prep curriculum will be designed to link high school and postsecondary technical training in a continuous sequence. It is based on the recognition that the

workforce of the future will require increasing levels of technical skills and stronger foundations in applied academics.

A Tech Prep Associate Degree/Certificate program combines secondary and postsecondary programs and leads to an associate degree or two-year certificate/diploma; provides technical preparation; builds student competence in math, science and communications; and leads to placement in employment. This is the "2 + 2" approach (years 11, 12, 13, and 14). The Arkansas Plan may go beyond the "2 + 2" approach; however, to a "2 + 4 + 2 + 2" plan. This plan would have students begin the Tech Prep core in junior high and continue through high school and two-year or four-year postsecondary institutions. Tech Prep would also reduce duplication by advanced placement and reduce remediation by raising basic competencies. Tech Prep can also be a concept for apprenticeship/work-based learning programs where it serves as foundation for linking to either postsecondary training and/or to training in the workplace.

The secondary-level Tech Prep Program runs parallel to, but does not replace, the secondary College Prep Program; combines a common core of learning and technical education; rests on the foundation of basic proficiency in math, science, communications and technology; presents content in applied settings and consists of a structured and closely coordinated curriculum; and builds on career clusters of technical systems.

The students of today can expect to change jobs every five to ten years and even to change occupations several times during their working years. Vocational education, with its mission of career preparation, can no longer be a narrow field of study. Instead, it must prepare students to deal with the challenges they will face in a global economy and rapidly changing workplace.

The success of our future educational system hinges upon making several changes in the current structure. First, tracking must be eliminated, because many times it segregates students and labels them as "college material" or "non-college material." The middle 50 percent of students frequently enroll in watered-down courses and spend their high school years in an unstructured hodgepodge of classes that leave them poorly prepared for the workplace or for postsecondary education. Instead, the educational system must be restructured to provide all students with the foundations to enter the workforce, to pursue additional education, or both.

A second change that is needed in the current system is an elimination of the artificial division between "academic" and "vocational." The competencies of all students in math, communications, science and technology must be raised regardless of whether students are college-bound or work-bound. The level of instruction in these areas needs to be equivalent to that in the traditional college preparatory curriculum so that work-bound students will have the technological literacy to function in the workplace.

Tech Prep is considered a "dual-purpose program of study," meaning that upon completion of the Tech Prep core, students are prepared to enter a vocational or technical program, a college preparatory program or a combination of the two. Tech Prep does not undermine the academic system; in fact, research shows that the Tech Prep program of study can strengthen the academic achievement of all students.

The Arkansas Tech Prep core curriculum consists of courses in (1) Computer Technology, (2) Applied Academics, (3) Keyboarding, (4) Personal and Family Life skills, (5) Workplace Readiness, and (6) Career/Occupational Orientation. Classes in computers, keyboarding, personal and family life skills and career orientation are already available at

the junior high school level, and only applied academics and workplace readiness courses remain to be integrated into the high school curriculum.

Integration of academic and vocational education will be achieved through applied academics (math, science and communications). Applied academics balances theoretical concepts and workplace applications. Academic principles are taught in the context of real-life applications that are transferable to life and work situations. This type of integrated, hands-on instruction can be provided only with close coordination between academic and vocational instructors. Such coordination is a new experience for many instructors, so it is essential that instructors receive extensive orientation to the philosophy and goals of applied academics, as well as inservice in specific methods of teaching using the applied approach. Finally, a system of accountability to measure student improvement must be built into applied academics.

WHY IS TECH PREP NEEDED? At a time when employers are demanding high performance in the American workforce, "more than half our young people leave school without the knowledge or foundation required to find and hold a job," according to a 1991 report from the U.S. Department of Labor. Today's workplace requires advanced technical skills and an ability to understand complex theories and processes in rapidly changing and emerging technologies. Most jobs that offer growth, challenge, and earning potential require a working knowledge of math, science, technical principles and information/communications skills. Students well educated in the rigorous applied academics as well as technical skills can transfer their knowledge of principles, concepts, and technologies to practical applications in a variety of technical jobs.

WHO BENEFITS FROM TECH PREP PROGRAMS? American society and the economy will certainly benefit by the development of a world-class workforce which will enable American business to compete effectively in the world market. the cooperation at different levels of education will eliminate program duplication and provide greater efficiency in the development of human resources in our nation.

- Students enrolled in the programs are the big winners in Tech Prep. they develop strong academic competencies while obtaining a quality technical education. Even more important, they develop the competence and confidence to succeed in a fast-changing high-tech society.

- Employers benefit from the availability of better educated workers. The skilled worker shortages should be alleviated as Tech Prep programs become widely operational across the country.

- High schools benefit from implementing Tech Prep programs because more students have a reason to complete their education. The tone and morale of high schools will improve as more students engage in a purposeful and substantial educational program.

- Postsecondary institutions can raise the level of their programs to provide advanced skills because students will be better prepared for college-level courses. Spending less time and fewer resources on remedial or fundamental education programs, two-year colleges will be able to spend more on increasingly sophisticated technical programs, providing a foundation for continued learning and career development.

WHAT CHARACTERISTICS DO SUCCESSFUL PROGRAMS MANIFEST? A primary goal of Tech Prep focuses on learning outcomes achieved through multiple learning environments and teaching strategies which involve secondary and postsecondary

institutions, business and labor, and government. Major features basic to the design and development of Tech Prep programs include:

●**Contextual Learning** - Many students perform poorly in school because current learning styles do not address the way they learn. They do not learn well in the abstract; they are experiential learners. Findings from cognitive research indicate that the most productive approaches to teaching provide learning opportunities that take the student from (1) concrete to abstract, (2) specific to general, (3) practice to theory, and (4) familiar to unfamiliar. A curriculum of applied academics – a careful balance of head skills and hand skills incorporates all of these concepts and makes learning understandable, achievable, and attractive for experiential learners.

The Tech Prep curriculum runs parallel to the college prep program in high schools, presenting a rigorous body of knowledge in a contextual setting and relating it to personal or social situations relevant to the workplace. applied academics in mathematics, science, and communications form the strong academic foundation for the Tech Prep program which will enable students to understand complex technologies and new skill requirements in work environments. The program tolerates no "watered-down" courses but maintains the same academic integrity as the college prep curriculum, expanding occupational education to include academic development.

Applied academics courses address fundamental principles of productivity, teamwork, and flexibility needed in the workplace. Inclusion of applied academics in the Tech Prep curriculum provides the opportunity to build a solid foundation in fundamental courses in the early part of the high school program and to introduce the concepts of technology on that strong base. Because of the sound academic base, the student can advance to a

specialty in the associate degree plan at a two-year college or seek a baccalaureate degree at a four-year college.

●**Local Partnerships** - Employers, labor representatives, parents, and community organizations have equal representation with secondary and postsecondary sectors on Tech Prep councils or steering committees during program planning and implementation. The business/labor community identifies student outcomes required for future as well as current jobs; reviews curricula and course content for job relevance; and participates with educators to develop and provide work-based learning experiences such as shadowing, mentoring, cooperative learning, internships, apprenticeships, etc. Comprehensive and intensive partnerships must be developed and maintained between academic and occupational/technical education, secondary and postsecondary education, education and business/labor, and education and state/local government.

●**Articulation** - Articulation is a process for coordinating the linking of two or more educational systems within a community to help students make a smooth transition from one level to another without experiencing delay, duplication of courses, or loss of credit. Educations from elementary, secondary, and postsecondary institutions will work together to design and deliver curricula with a continuity that facilitates steady progress from one level to the next.

●**Career Exploration and Counseling** - Career awareness activities are essential for promoting Tech Prep/Associate Degree programs and recruiting students for the programs. This function involves a comprehensive, coordinated career counseling network of the facilities, programs, and skills of junior high/middle school, secondary, and postsecondary counseling professionals. To increase intelligent career choices, programs in career awareness, career exploration, and career/educational planning should begin at the

elementary school level and continue throughout the college experience. the effort includes familiarizing students with many different job/career options, providing information on what is required to be successful in the positions, and leading students to discover and explore their own interests and aptitudes.

●**Associate and/or Baccalaureate Degree Potential** - The fundamental courses prepare students thoroughly and proficiently for a variety of options after graduation from high school. Students may articulate into an associate degree program at a two-year college, seek a baccalaureate degree from a four-year college, or enter the workforce well prepared for an entry-level position in a chosen field, retaining the option to reenter career training later. The Tech Prep curriculum incorporates a series of exit/reentry points, each of which leads to a specific but progressively higher job classification.

●**Evaluated Postsecondary Curriculum** - The curricula of postsecondary institutions can be revised to an academic level consistent with expectations for college courses. Students entering college from a Tech Prep course of study in high school will be prepared to master advanced courses.

It may be several years before significant numbers of students will be graduating from secondary Tech Prep programs. Eighty percent of the people who will make up America's workforce in the year 2000 are already adults. Recent high school graduates as well as older adults in the community who desire to acquire associate degrees–the desired degree in many career fields in the future–may need preliminary academic assistance. a one-semester program, a "bridge program," includes academic foundation courses and some technical courses necessary to succeed in advanced associate degree programs. this program provides the essential elements contained in a high school Tech Prep program. A

"bridge program" allows postsecondary schools to maintain or even raise the level of their course content to provide increasingly advanced skills.

WHAT ENSURES A SUCCESSFUL TECH PREP PROGRAM? Business/labor and government cooperate with education in a successful program. Employers who play an active role in the program can pique students' interest, help them form practical and realistic ideas about the world of work, and motivate them through awareness of career possibilities and expectations. Providing work-based learning opportunities that take students beyond the classroom will correct preconceived notions, erase misconceptions ,and instill appropriate ideas about what is expected of them when they finish school.

In educational reform movements, teachers and principals are the ones who facilitate systemic changes at the foundation, thereby determining the degree of success of innovative programs. Teachers, principals, and counselors, as well as college faculty and administrators, must be included in all phases of planning and implementation of new Tech Prep programs. Appropriate inservice training and adequate resources will accommodate the achievement of Tech Prep goals effectively and efficiently.

The federal government has devoted significant funds to the support of Tech Prep through the Carl D. Perkins Vocational and Applied Technology Education Act of 1990. This support is accompanied by increased expectations for documenting the successful integration of occupational and academic learning. For continuing and long-term success, however, local resources must be reallocated to support the needs of the established Tech Prep programs.

The Tech Prep/Associate Degree concept offers an answer to America's mandate to improve our educational system and to remain competitive in the world market. A

successful program promises to upgrade front line workers, improve the productive capacity of entry-level workers, and provide quality education for all students. With the cooperation, participation, and commitment from secondary and postsecondary educational establishments, local employers, teachers, parents, and students, the program will serve as an agent of positive change for the American workforce as well as the country's educational system.

Information contained in this presentation was collected mostly from the National Tech Prep Network newsletter, the North Arkansas Tech Prep News and the Arkansas Plan for Tech Prep.

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